

AMENDMENTS TO THE CLAIMS

Please cancel claim 19, such that the status of the claims is as follows:

1. (Previously presented) A method of forming a tunneling magnetoresistive head, the method comprising:
forming a tunneling magnetoresistive stack having a tunnel barrier;
forming an air bearing surface of the tunneling magnetoresistive stack;
ion etching the air bearing surface to cause deficiencies of a constituent of the tunnel barrier
in a portion of the tunnel barrier adjacent the air bearing surface; and
replenishing at least a portion of the constituent in the portion of the tunnel barrier adjacent
the air bearing surface.
2. (Previously presented) The method of claim 1, wherein replenishing the constituent comprises
subplanting the constituent into the air bearing surface during ion etching.
3. (Previously presented) The method of claim 1, wherein replenishing the constituent comprises exposing
the air bearing surface to a constituent source after ion etching.
4. (Original) The method of claim 1, wherein forming a tunneling magnetoresistive stack having a tunnel
barrier comprises forming a tunnel barrier from a material selected from the group consisting of oxides of
Hf, Ta, Nd, Ti, Mg, Al, Y, Zr, and Si.
5. (Original) The method of claim 1, wherein forming a tunneling magnetoresistive stack having a tunnel
barrier comprises forming a tunnel barrier of an oxide.
6. (Original) The method of claim 1, wherein forming a tunneling magnetoresistive stack having a tunnel
barrier comprises forming a tunnel barrier of a nitride.

7. (Original) The method of claim 1, wherein forming a tunneling magnetoresistive stack having a tunnel barrier comprises forming a tunnel barrier of an oxynitride.
8. (Previously presented) The method of claim 1, wherein ion etching the air bearing surface and replenishing the constituent occur simultaneously.
9. (Previously presented) A method of forming a tunneling magnetoresistive head, the method comprising:
forming a tunneling magnetoresistive stack having a tunnel barrier;
forming an air bearing surface of the tunneling magnetoresistive stack; and
ion etching the air bearing surface in the presence of a constituent source to replenish a
constituent of the tunnel barrier in a portion of the tunnel barrier adjacent the air
bearing surface.
10. (Original) The method of claim 9, wherein ion etching the surface in the presence of a constituent source comprises ion etching the surface in the presence of oxygen.
11. (Original) The method of claim 9, wherein forming a tunneling magnetoresistive stack having a tunnel barrier comprises forming a tunnel barrier of an oxide material.
12. (Previously presented) A method of forming a tunneling magnetoresistive head, the method comprising:
forming a first ferromagnetic layer;
forming a tunnel barrier on the first ferromagnetic layer,
forming a second ferromagnetic layer on the tunnel barrier;
lapping the first ferromagnetic layer, tunnel barrier, and second ferromagnetic layer to form
an air bearing surface;

ion etching the air bearing surface to cause a deficiency of a constituent of the tunnel barrier in a portion of the tunnel barrier adjacent the air bearing surface; and replenishing the deficiency of the constituent in the portion of the tunnel barrier adjacent the air bearing surface.

13. (Original) The method of claim 12, wherein replenishing the deficiency of the constituent comprises restoring at least one electrical property of the tunnel barrier.

14. (Previously presented) The method of claim 12, wherein forming a tunnel barrier on the first ferromagnetic layer comprises forming a tunnel barrier on the first ferromagnetic layer comprising an oxide.

15. (Previously presented) The method of claim 12, wherein forming a tunnel barrier on the first ferromagnetic layer comprises forming a tunnel barrier on the first ferromagnetic layer comprising a nitride.

16. (Previously presented) The method of claim 12, wherein forming a tunnel barrier on the first ferromagnetic layer comprises forming a tunnel barrier on the first ferromagnetic layer comprising an oxynitride.

17. (Original) The method of claim 12, wherein ion etching the air bearing surface and replenishing the deficiency of the constituent occur simultaneously.

18. (Original) The method of claim 17, wherein replenishing the deficiency of the constituent comprises restoring at least one electrical property of the tunnel barrier adjacent the air bearing surface.

19. (Canceled)